

near the summit and increase in strength as the mollusk adds to the substance of the shell. The postnuclear whorls are strongly acutely keeled at the periphery, which flares slightly upward, and the surface is marked by malleations which are strongest on the outer half of the whorls, and somewhat irregular impressed spiral lines, which are coarser on the upper portion of the whorls. Suture poorly impressed; periphery sharp. The base is moderately arched, the outer half of the last whorl is strongly malleated, the inner half finely spirally striated. The lines of growth here are of the same strength as on the spire. The umbilicus is moderately open, and the shell is constricted immediately behind the inner lip, while the upper lip is decidedly bent upward. The aperture is broadly oval; peristome moderately expanded, thickened and reflected. A low tooth is present on the inside of the middle of the basal lip.

The type, U.S.N.M. Cat. No. 314056, is one of 3 specimens sent to us by Mr. Webber collected at Virac, Catanduanes. It has 4.5 whorls, and measures: Height, 10.6 mm.; greater diameter, 32.1 mm.; lesser diameter, 25.7 mm.

Two paratypes in Mr. Webber's collection yield the following measurements: Height, 12.8 and 12.1 mm.; greater diameter, 31.7 and 33.2 mm.; lesser diameter, 25.8 and 25.8 mm., respectively.

An additional specimen, U.S.N.M. Cat. No. 311069, received from Mr. Maxwell Smith, comes from Batu, Catanduanes, a station not far removed from Virac. It yields the following measurements: Height, 10.6 mm.; greater diameter, 32.8 mm.; lesser diameter, 24.7 mm.

This subspecies in general form resembles the typical race, but is much smaller and of much darker coloration.

ENTOMOLOGY.—*Some butterflies from eastern Virginia.*¹ AUSTIN
H. CLARK and LEILA F. CLARK, U. S. National Museum.

Since the days of Boisduval and Le Conte the butterflies of eastern Virginia have received little attention. Various collectors have visited the region, but only a few notes on some of the more unusual species have been published.

We have made a preliminary reconnaissance of this area, visiting Accomac and Northampton Counties on July 20–27, 1935, Princess Anne County on September 23–24, 1934, and Norfolk and Nansemond Counties on September 1–3, 1935. Although our time was limited, we feel that we secured a fairly complete representation of such butterflies as were flying when we were in any given locality, and therefore that our list is sufficiently detailed to serve as a basis for future intensive work.

Included in the list are records of nine species from Bayford, Northampton County, kindly given us by Dr. Florence Walker of Bayford, and of one from Lake Drummond which we owe to the courtesy of Dr. Paul Bartsch. With these included our list totals sixty-nine species.

¹ Received October 26, 1935.

We are under great obligations to Dr. Hugo Kahl, of the Carnegie Museum, Pittsburgh, Pa., who was so very kind as personally to bring to Washington the type specimens, male (Figs. 7, 8) and female (Figs. 5, 6), of *Atrytone dion* W. H. Edwards, and the unique type of *Atrytone dion* race *alabamiae* Lindsey (Figs. 9, 10) for comparison with our material, and also to Mr. Ernest L. Bell, of Flushing, N. Y., who most courteously verified our determination of certain skippers.

Family NYMPHALIDAE: Subfamily SATYRINAE: *Enodia creola* (Figs. 1, 2); western border of the Dismal Swamp and westward in wet woods, locally frequent, always with the following. *Enodia portlandia*; locally frequent to abundant in low wet woods throughout Princess Anne, Norfolk, and Nansemond Cos. *Neonympha gemma*; locally common in very wet woods in Princess Anne Co.; less common in Norfolk and Nansemond Cos. *Neonympha areolatus* var. *septentrionalis* (Figs. 3, 4); along Norfolk Southern Railway, about 1½ miles north of the North Carolina line; frequent. *Neonympha sosybius*; common everywhere in woods in Princess Anne, Norfolk, and Nansemond Cos. *Neonympha eurytus*; Bayford, Northampton Co., common in spring (F. Walker). *Cercyonis alope alope*; occasional throughout except in the eastern part of Princess Anne Co., where it is replaced by the following. *Cercyonis alope pegala*; Virginia Beach and Princess Anne; frequent.

Subfamily NYMPHALINAE: *Chlorippe clyton*; Bayford, Northampton Co., sometimes common (F. Walker). *Basilarchia arthemis astyanax*; occasional throughout. *Basilarchia archippus*; occasional throughout. *Junonia coenia*; everywhere common. *Pyrameis atalanta*; not seen in Princess Anne Co., elsewhere occasional to common. *Pyrameis virginiensis*; not seen in Princess Anne Co., elsewhere occasional to frequent. *Pyrameis cardui*; Wachapreague and Locustville, Accomac Co., occasional; Suffolk, occasional; Green Sea, frequent. *Vanessa antiopa*; Bayford, Northampton Co., October (F. Walker). *Polygonia comma*; Bayford, Northampton Co. (F. Walker). *Phyciodes tharos*; common throughout. *Brenthis myrina*; Bayford, Northampton Co., rare (F. Walker). *Argynnis cybele*; Bayford, Northampton Co., rare (F. Walker). *Euptoieta claudia*; occasional or locally frequent throughout.

Subfamily DANAINAE: *Danais plexippus*; occasional throughout but nowhere common.

Subfamily LIBYTHEINAE: *Libythea bachmanni*; Bayford, Northampton Co., one (F. Walker).

Family RIODINIDAE: *Charis virginiensis*; common just south of Virginia Beach.

Family LYCAENIDAE: Subfamily LYCAENINAE: *Chrysophanus phlaeas hypophlaeas*; Wachapreague, Accomac Co., and Jamesville and Kiptopeke, Northampton Co. *Everes comyntas*; generally frequent throughout. *Lycae-*

nopsis argiolus pseudargiolus; not seen in Princess Anne Co., elsewhere locally frequent.

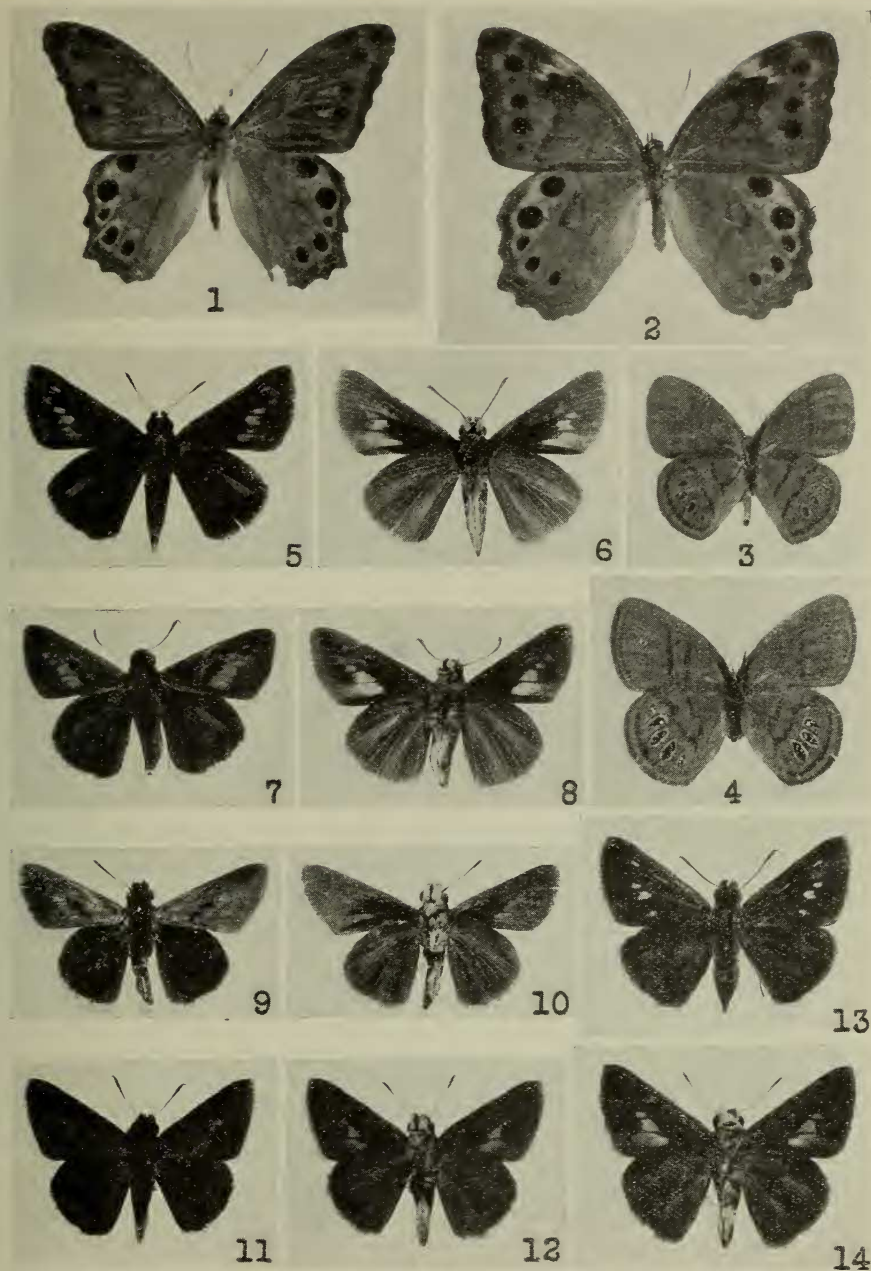
Subfamily THECLINAE: *Atlides halesus*; Lake Drummond, October 27 (P. Bartsch). *Strymon cecrops*; occasional to frequent in woods throughout. *Strymon melinus*; generally frequent throughout. *Mitoura gryneus*; Bayford, Northampton Co.

Family PAPILIONIDAE: Subfamily PIERINAE: *Eurema lisa*; frequent to abundant throughout. *Eurymus philodice philodice*; New Church and Wachapreague, Accomac Co., and Virginia Beach; rare; *Eurymus philodice eurytheme*; abundant everywhere in Accomac and Northampton Cos., infrequent in Princess Anne, Norfolk, and Nansemond Cos. *Zerene caesonis*; Bayford, Northampton Co., one (F. Walker). *Catopsilia eubule*; everywhere frequent in Nansemond, Norfolk, and Princess Anne Cos., becoming abundant near the sea; frequent along the western shore of Northampton and Accomac Cos., and at Chincoteague Island; one female of form *sennae* from Virginia Beach. *Anthocaris genutia*; Bayford, Northampton Co., common in spring (F. Walker). *Pieris rapae*; frequent near farms throughout, though generally not very common.

Subfamily PAPILIONINAE: *Papilio polyxenes asterius*; frequent throughout, and the commonest swallowtail in Accomac and Northampton Cos. *Papilio cressphontes*; frequent at Kiptopeke and Bayford, Northampton Co., and also found at Wachapreague, Accomac Co., and Little Creek and Deep Creek, Norfolk Co. *Papilio glaucus*; not seen in Princess Anne Co., but elsewhere frequent. *Papilio troilus*; frequent throughout; least common in Princess Anne Co. *Papilio palamedes*; the most abundant swallowtail in and near the Dismal Swamp; generally common in suitable situations in Princess Anne, Norfolk, and Nansemond Cos.

Family HESPERIIDAE: Subfamily PYRGINAE: *Goniurus proteus*; Virginia Beach, one. *Epargyreus tityrus*; not seen in Princess Anne Co., occasional to common elsewhere. *Thorybes bathyllus*; occasional throughout. *Thorybes confusus*; Princess Anne, one. *Pyrgus communis*; Wachapreague and Harborton, Accomac Co., and Bayford, Northampton Co. *Pholisora catullus*; not seen in Princess Anne Co., elsewhere locally frequent. *Thanaos juvenalis*; Wachapreague and Dahl Swamp, Accomac Co. *Thanaos horatius*; occasional to frequent throughout. *Thanaos terentius*; Wachapreague and Dahl Swamp, Accomac Co., and Kiptopeke, Northampton Co.

Subfamily HESPERIINAE: *Ancyloxypha numitor*; frequent to common throughout. *Hylephila phylaeus*; occasional to frequent throughout. *Atalopedes campestris*; the commonest skipper in Accomac and Northampton Cos.; occasional in Nansemond Co.; not seen in Norfolk and Princess Anne Cos. *Talides manataaquia*; on the line of the Norfolk Southern Railway, about $1\frac{1}{2}$ miles north of the North Carolina border; frequent. *Talides themistocles*; occasional throughout. *Wallengrenia otho egeremet*; Dahl Swamp and Cashville, Accomac Co.; Bayford, Northampton Co.; on the line of the



Figs. 1, 2.—*Enodia creola*, Dismal Swamp, Va., male, Sept. 1, 1935 (1), and female, Sept. 2, 1935 (2). Figs. 3, 4.—*Neonympha areolatus* var. *septentrionalis*, near the Dismal Swamp, Va., Sept. 3, 1935, male (3) and female (4), under side. Figs. 5, 6.—*Atrytone dion* Edwards, female, type specimen, Whiting, Indiana, upper (5) and under (6) sides. Figs. 7, 8.—*Atrytone dion* Edwards, male, type specimen, Whiting, Indiana, upper (7) and under (8) sides. Figs. 9, 10.—*Atrytone dion* race *alabamiae* Lindsey, male, type specimen, from Mobile County, Alabama, upper (9) and under (10) sides. Figs. 11, 12.—*Atrytone dion alabamiae*, male, Dahl Swamp, Accomac Co., Va., July 23, 1935, upper (11) and under (12) sides. Figs. 13, 14.—*Atrytone dion alabamiae*, female, Dahl Swamp, July 25, 1935, upper (13) and under (14) sides.

Norfolk Southern Railway, about $1\frac{1}{2}$ miles north of the North Carolina border. *Poanes zabulon*; Bayford, Northampton Co.; near Adam's Swamp, Nansemond Co., about $1\frac{1}{2}$ miles north of the North Carolina border and about 3 miles west of the Dismal Swamp. *Poanes yehl*; Green Sea, one male; Dismal Swamp, near Suffolk, one female. *Atrytone dion alabamiae* (Figs. 11-14); Dahl Swamp, Accomac Co., common; Green Sea, Norfolk Co., one female. *Atrytone ruricola*; Dismal Swamp; Green Sea. *Lerema accius*; the commonest skipper in Nansemond, Norfolk, and Princess Anne Cos.; not seen in Northampton or Accomac Cos. *Amblyscirtes textor*; frequent everywhere in wet woods in Nansemond, Norfolk, and Princess Anne Cos., and locally common and even abundant about the Dismal Swamp. *Amblyscirtes carolina*; western border of the Dismal Swamp about 8 miles south of Suffolk, three, in company with large numbers of the preceding. *Lerodea l'herminier*; western border of Dismal Swamp, frequent: Virginia Beach, one. *Lerodea eufala*; Green Sea, Norfolk Co., one. *Prenes panoquin*; Wachapreague and Chincoteague Island, Accomac Co., abundant on *Borrchia frutescens*; Hack's Neck, Accomac Co.; Bayford, Northampton Co., common. *Prenes ocola*; Virginia Beach, one; Dismal Swamp, one.

ENTOMOLOGY.—*The bees of the genus Agapostemon (Hymenoptera: Apoidea) occurring in the United States.*¹ GRACE ADELBERT SANDHOUSE, Bureau of Entomology and Plant Quarantine. (Communicated by S. A. ROHWER.)

This study of the *Agapostemon* occurring in the United States was undertaken to facilitate the identification of these species. The results presented in this paper are based on the examination of about four thousand specimens and many dissections of the male genitalia.

The collection of the *Agapostemon* in the United States National Museum has served as a basis for this revisionary study. This was supplemented by loans from the American Museum of Natural History (through Dr. F. E. Lutz), the Academy of Natural Sciences of Philadelphia (through Mr. E. T. Cresson, Jr.), the Illinois State Natural History Survey (through Dr. T. H. Frison), Cornell University (through Dr. J. C. Bradley), McGill University (through the late Mr. Albert F. Winn), South Dakota State College (through Prof. H. C. Severin), the Bureau of Biological Survey (through Mr. J. R. Malloch), the University of Minnesota (through Dr. C. E. Mickel), and the private collections of Drs. Joseph Bequaert, Harold Morrison and T. B. Mitchell, Prof. H. A. Scullen, Mr. C. N. Ainslie

¹ Published by permission of the Chief of the Bureau of Entomology and Plant Quarantine. Received November 8, 1935.